

**THE OUTCOME OF TRANSANAL ADVANCEMENT
FLAP REPAIR OF RECTOVAGINAL FISTULAS IS NOT
IMPROVED BY AN ADDITIONAL LABIAL FAT FLAP
TRANSPOSITION**

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ABSTRACT

Aim of the present study was to evaluate the outcome after transanal advancement flap repair (TAFR) of rectovaginal fistulas and to investigate the impact of an additional labial fat flap transposition (LFFT). Between 1991 and 1997, 21 consecutive patients underwent TAFR of their rectovaginal fistula. The first 9 patients underwent TAFR with (n = 3) or without (n = 6) anterior anal repair. In the following 12 patients a LFFT was added to the advancement flap. In 4 of these a concomitant anterior anal repair was performed. Overall healing rate was 48 percent. In the first 9 patients, in whom no additional LFFT was performed, the rectovaginal fistula healed in 4 cases (44 percent). In the following 12 patients in whom an additional LFFT was performed, a similar healing rate was observed (50 percent). The outcome of TAFR of rectovaginal fistulas is poor. Addition of a LFFT does not improve this outcome.

INTRODUCTION

Rectovaginal fistulas are abnormal, epithelium-lined communications between the rectum (or anal canal) and the vagina. Despite their relative infrequency, the physical and emotional burdens due to rectovaginal fistulas are quite high. Rectovaginal fistulas can be classified as low, intermediate and high, depending on the location of the vaginal opening. The low rectovaginal fistulas are most commonly encountered. Obstetric injury is by far the most frequently reported cause of these low rectovaginal fistulas¹⁻⁴. Cryptoglandular abscesses and associated fistulas, directed toward the anterior midline, may result in a communication with the posterior wall of the vagina. Infection after surgical procedures on the perineal body, such as

anterior anal repair, have also been implicated in the formation of low rectovaginal fistulas. Several techniques are available for the surgical treatment of these fistulas. In the early eighties transanal advancement flap repair was advocated as the treatment of choice for patients with a low rectovaginal fistula. Initially, the reported healing rates varied between 78 and 95 percent⁴⁻⁷. More recently, a significantly lower healing rate has been reported⁸⁻¹⁰, especially in women who had undergone multiple previous attempts at repair. In our own institution we also encountered low healing rates after transanal advancement flap repair.

In an attempt to improve our results, we added labial fat flap transposition to the advancement flap repair of rectovaginal fistulas. Aim of the present study was to evaluate the outcome after transanal advancement flap repair of rectovaginal fistulas and to investigate the impact of an additional labial fat flap transposition

PATIENTS AND METHODS

Between 1991 and 1997, 21 consecutive patients with a low rectovaginal fistula (median age: 33 (range: 16 – 58 yrs.)) underwent an advancement flap repair of their fistula. In 8 patients the fistula developed after vaginal delivery, complicated by a perineal tear. In 8 patients the fistula was the result of a perianal cryptoglandular abscess. In the remaining 5 patients, the fistula was due to a wound infection after anterior anal repair. Patients with fistulas that were associated with inflammatory bowel disease, or patients who had undergone radiotherapy of the pelvic area were excluded from the present series. Three patients (14 percent) had undergone one or more prior attempts at repair before referral to our hospital. Before the operation, all

patients underwent MR imaging with utilization of an endoanal coil in order to identify anterior sphincter defects.

The first nine patients were operated on between 1991 and 1993. All these patients underwent transanal advancement flap repair without labial fat flap transposition. In three of these patients, an anterior anal repair was added to the flap repair since an anterior sphincter defect was identified on endoanal MRI. Between 1993 and 1997 a labial fat flap transposition was added to the flap repair in 12 patients. In four of these patients, an anterior sphincter defect was identified. Therefore they also underwent a concomitant anterior anal repair. The different procedures, performed in our patients are outlined in figure 7.1.

		Patients	Success	Failure	Healing Rate (%)	
TAFR	without LFFT	with AAR →	3	1	2	33
		without AAR →	6	3	3	50
	with LFFT	with AAR →	4	2	2	50
		without AAR →	8	4	4	50
<i>Total:</i>		21	10	11	48	

Figure 7.1; Surgical procedures adopted for the repair of rectovaginal fistulas in 21 consecutive patients seen between 1991 and 1997. TAFR, transanal advancement flap repair; LFFT, labial fat flap transposition; AAR, anterior anal repair.

surgical technique

All patients underwent complete mechanical bowel preparation (polyethylene glycol). After induction of general endotracheal anesthesia, metronidazole (500 mg) together

with cefuroxime (1500 mg) was administered intravenously. All patients were operated on in the lithotomy position.

surgical technique – Transanal Advancement Flap Repair

A flap consisting of mucosa, submucosa and a few fibers of the internal anal sphincter, was raised from the level of the dentate line and mobilized 4 to 6 cm proximally. The base of the flap was about twice the width of its apex. The fistulous tract was cored out of the sphincters. The defect in the internal anal sphincter was closed with absorbable sutures (monocryl 2 x 0). After excision of its apex, the flap was advanced and sutured to the neodentate line with absorbable sutures (monocryl 2 x 0). (Chapter 3)

surgical technique – Labial Fat Flap Transposition

A curvilinear incision, paralleling the outer edge of the superficial part of the external anal sphincter was used. The arc of the incision was limited to 180 degrees anterolaterally to avoid pudendal nerve damage (figure 7.2a). The posterior vaginal wall was separated from the anterior rectal wall and cephalad mobilization was extended until the fistulous tract was reached and adequately mobilized. The fistulous tract was excised. A vertical incision was then made over the lateral part of either the right or left labium majus (figure 7.2a). The fibro-adipose flap was then separated from adjacent structures. After ligation of the proximal vascularization the graft was rotated and tunneled subcutaneously tunnel to the space between vagina and rectum (figure 7.2b). The graft was sutured to adjacent structures with absorbable sutures (monocryl 2 x 0) (figure 7.2c).

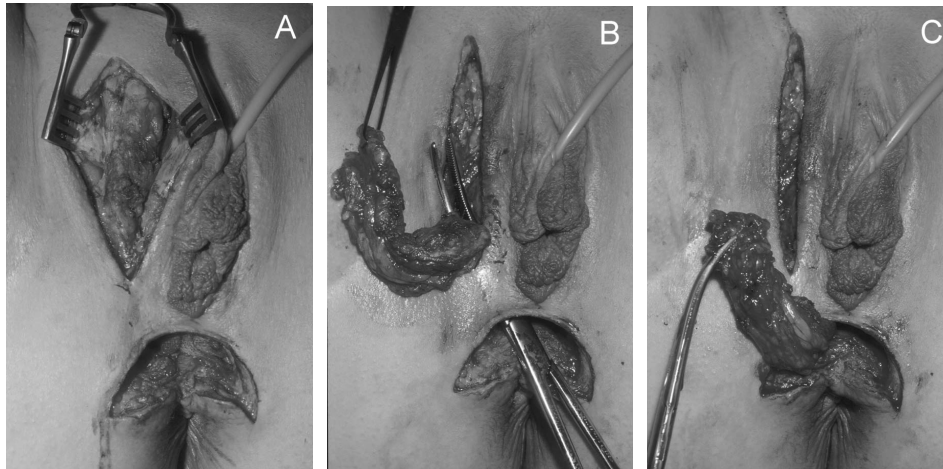


Figure 7.2; Schematic drawing of the steps involved in the labial fat flap transposition. **A;** Locations of the curvilinear incision and of the vertical incision over the labium majus. **B;** The fibro-adipose flap was separated from adjacent structures. Proximal vascularization was ligated. **C;** The flap was subcutaneously tunneled to the space between vagina and rectum and sutured to adjacent structures.

At the end of the procedure the subcutaneous layer was closed and the skin was left open. The labial wound was closed intracutaneously with absorbable sutures.

postoperative care

All patients were immobilized for 5 days. During this time period metronidazole and cefuroxime were administered intravenously three times daily. After release from the hospital, all patients were instructed to take frequent sitz-baths and to refrain from activities that could harm the flap (e.g., riding a bicycle).

RESULTS

Median follow-up was 15 months (range 4 - 66). Two patients developed a perineal wound infection resulting in an ‘anoperineal’ fistula. The overall healing rate among our 21 patients was 48 percent. The etiology of the fistula, the age of the patient and

the addition of an anterior anal repair did not significantly influence the outcome. These different subgroups are outlined in table 7.1. In the first 9 patients, who underwent a flap repair without a labial fat flap transposition, the rectovaginal fistula healed in 4 cases (44 percent). In the following 12 patients in whom a labial fat flap transposition was added to the transanal advancement flap repair, a similar healing rate was observed (50 percent).

<i>Factor</i>		<i>Success (n)</i>	<i>Failure (n)</i>	<i>Healing Rate (%)</i>
Age (yrs)	<35	4	7	36
	>35	6	4	60
Concomitant AAR	YES	3	4	43
	NO	7	7	50
Prior Attempts	YES	1	2	33
	NO	9	9	50
Etiology	Cryptoglandular	4	4	50
	Obstetric	4	5	44
	Wound infection	2	2	50

Table 7.1; Healing within different subgroups

DISCUSSION

Transanal advancement flap repair was introduced in the early 1980's for the treatment of cryptoglandular perianal fistulas. Based on the high success rates this procedure was also advocated as the treatment of choice for low rectovaginal fistulas^{5,6}. Initially, the reported healing rates varied between 78 and 95 percent^{5,6}. Based on these excellent results this approach was also introduced in our institution. Unfortunately, our experience with the first nine patients, operated between 1991

and 1993 was rather disappointing. The healing rate in this group of patients was only 44 percent. Recently, similar results have been reported by others⁸⁻¹⁰. The explanation for this rather low efficacy of advancement flaps is not clear.

Based on several reports, it seems likely that the number of previous repairs affects the closure rate after transanal advancement flap repair. Lowry and coworkers observed a healing rate of 88 percent in patients without a previous attempt at repair. The closure rate dropped to 55 percent in patients with two previous attempts at repair⁴. Similar findings have been described, both by Watson⁹ and by Tsang¹⁰. Comparing patients with and without prior attempts at repair, Watson and coworkers found a healing rate of 64 and 50 percent respectively whereas Tsang and coworkers observed a healing rate of 45 and 25 percent respectively. However, neither of these differences reached statistical significance. In the present series 21 patients underwent an advancement flap procedure. Only a small number of these patients (n=3) had undergone prior attempts at repair, so unfortunately, the numbers are too small for a meaningful comparison. It has also been suggested that women with a fistula, due to an obstetrical injury may have a higher failure rate, because of their concomitant sphincter defect. Tsang and coworkers¹⁰ suggest that many of the good results that have been reported previously may be caused (in part) by the effect of concomitant sphincteroplasty. According to these authors, local tissues in patients with a sphincter defect are inadequate to support transanal advancement flap repair. It is questionable whether this statement is correct or not. Lowry and coworkers⁴ performed a flap repair in 56 patients and a flap repair with concomitant sphincteroplasty in 25 patients. Regarding the closure rates, they found no significant differences between both groups. Wise and coworkers⁷ performed a flap repair in 34 patients. Fifteen of those patients underwent a concomitant sphincteroplasty. Comparing both groups, Wise and coworkers were not able to show any difference

in outcome. In the present series, anterior sphincter defects were identified in 7 patients by endoanal MRI prior to the operation. In all these patients, a concomitant anterior anal repair was performed. The closure rate in these patients was only 43 percent. The healing rate among patients who underwent a flap repair without a sphincteroplasty was 50 percent. Based on these findings it seems unlikely that a concomitant sphincteroplasty improves the outcome of advancement flap repair. Therefore we do not recommend a concomitant anterior anal repair as a support for transanal advancement flap repairs. Such a sphincteroplasty should only be performed in patients who complain of incontinence before the operation.

It has been suggested that poor blood supply and scarring of the rectovaginal septum precludes healing^{4,8}. Based on this assumption, it might be possible that interposition of well vascularised tissue in the rectovaginal septum can improve the efficacy of a flap repair. Until now only one small series has been reported by Pinedo and Philips¹⁴. They performed an advancement flap with simultaneous labial fat pad graft in 5 patients. In three other patients, a transperineal approach was used with simultaneous anterior sphincter repair. All these subjects had a defunctioning stoma. The closure rate among these eight patients was 75 percent. Unfortunately, they did not specify the healing rate among the 5 patients in whom an advancement flap was used with simultaneous labial fat flap transposition. In the present study, a similar approach was applied in 12 patients. Based on the poor healing rate (50 percent) observed among these patients, it seems unlikely that addition of labial fat flap transposition improves the outcome of transanal advancement flap repair. In the past, labial fat flap transposition in rectovaginal fistula repair has only been performed by gynecologists. Reviewing their technique, we noticed that they applied a completely different, transvaginal approach. According to their technique the vaginal opening of the fistula was excised. After wide mobilization of the vaginal

mucosa, the defect in the anterior rectal wall was closed in two layers by running absorbable sutures. Then the labial fat flap was tunneled under the skin between the labial incision and the vaginal incision, and secured over the fistula repair with absorbable sutures. After this, the vaginal mucosa was closed. The anal opening of the fistula was left open in all cases. The results of this approach were remarkably good. Zacharin¹², for example, reported a healing rate of 85 percent. Similar results have been described by others^{13,15} According to these authors; the labial fat pad graft brings healthy, well-vascularised tissue to the region. Furthermore, this graft provides a “plug effect” and keeps the healing layers apart thereby minimizing cross-union. The poor results after transanal advancement flap repair with or without labial fat flap transposition and the excellent results of the transvaginal approach suggest that closure of the anal opening, as advocated by colorectal surgeons for more than two decades, may not be beneficial.

CONCLUSIONS

The results of the present study illustrate that the surgical treatment of rectovaginal fistula is challenging and difficult. In the patients who underwent transanal advancement flap repair the outcome was remarkably poor. Unfortunately, this result can not be improved by addition of a Martius graft. As of yet it is unclear why this type of repair does not yield the results it has done in earlier reports.

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SUMMARY AND CONCLUSIONS

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